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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,889	11/17/2003	Gerald L. Timm	1349	5292

7590

11/22/2006

DAVID J. ARCHER  
7037 POMEROY RD.  
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EXAMINER
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RINEHART, KENNETH

ART UNIT	PAPER NUMBER
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3749

DATE MAILED: 11/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/715,889	<b>Applicant(s)</b> TIMM ET AL.	
	<b>Examiner</b> Kenneth B. Rinehart	<b>Art Unit</b> 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17-24 is/are rejected.
- 7) ☒ Claim(s) 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the a segment fastener disposed between said first and a second end of an adjacent segment for forcing adjacent segments apart; each fastener being threaded on one of said ends thereof; each of said hoop segments forming a hole in each end thereof, for engagement with a segment fasteners; each of said segment fasteners having a head that passes through said hole in said end of said segment; a hexagonal socket head defined by said fastener for permitting tightening of said fastener by a power tool; a cylindrical pin for connecting each of said bars to an adjacent segment, said pin has an interference boss to hold said pin in said segment; said pin having a shoulder to prevent said pin from coming out of said segment, said pin extending far enough out of said segment and into said bar so that disengagement of said pin from said segment is prevented must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

Art Unit: 3749

renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17, 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Barnscheidt et al (3,217,426). Barnscheidt et al shows holding a number of bars axially against an inside surface of the dryer cylinder (8,9, fig. 3), said number being within a range 3 to 9; and locating hoop segments within the dryer cylinder such that each segment is disposed in a generally circumferential position (fig. 3, fig. 1), said number of bars is 6 (fig. 3).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salminen (5,564,494). Salminen discloses a rotatable dryer shell of cylindrical configuration,

Art Unit: 3749

said dryer shell having an outer surface for drying the web; said dryer shell having an inner surface which defines an enclosure, said inner surface having a radius  $R_i$  (col. 1, line 19, fig. 18); said enclosure being connected to a source of pressurized steam such that in operation of the dryer, a transfer of thermal energy from the steam within said enclosure through said inner surface of said dryer shell to said outer surface of said dryer shell is achieved so that the web is dried (col. 1, lines 17-20, 24-27); a syphon disposed within said enclosure for controlling a layer of condensed steam accumulating adjacent to said inner surface of said dryer shell during operation of said apparatus (col. 1, line 37); a number of turbulence bars disposed within said enclosure, each of said turbulence bars extending in a cross machine direction in contact with said inner surface, said bars being circumferentially spaced equidistantly around said inner surface of said dryer shell for generating turbulence within said layer so that uniformity of said transfer of thermal energy in said cross machine direction ... while said transfer of thermal energy through said dryer shell from said inner to said outer surface ... (112, 108, 110, fig. 12a, abstract), a rotatable dryer shell of cylindrical configuration, said shell defining an outer and an inner surface (fig. 18); a number of dryer bars pressed outwardly against said inner surface, each of said bars extending in a cross machine direction along said inner surface; and each bar being spaced from an adjacent bar by a ... such that a rate of heat transfer through said dryer shell from said inner to said outer surface is... a temperature uniformity in said cross machine direction (112, 108, 110, fig. 12a, abstract). Salminen discloses applicant's invention substantially as claimed with the exception of is maximized, is minimized, and said number of turbulence bars being determined by the equation:  $N = \text{int} \{ 2\pi R_i / [4 \times (R_i - r_i) / 2 + W] \}$  in which:  $N$  = said number of turbulence bars in said dryer shell;  $\text{int}$  = an

Art Unit: 3749

integer number of a value in { } brackets;  $n=3.1415$ ;  $R_i$  = said inside radius of said inner surface of said dryer shell in inches;  $\delta$  = an average depth of said layer in inches;  $W$  = a width of each of said turbulence bars in inches, said number of turbulence bars is equal to  $N + 1$ , said number of turbulence bars is equal to  $N + 2$ ,  $N=3$ ,  $N=4$ ,  $N=5$ ,  $N=6$ ,  $N=7$ ,  $N=8$ ,  $N=9$ , quarter-resonant spacing, minimized while optimizing, said quarter-resonant spacing is determined by an equation:  $S=4x(R_i \delta)^{1/2}$  in which;  $S$  = said quarter-resonant spacing;  $n=3.1415$ ;  $R_i$  = said inside radius of said inner surface of said dryer shell in inches;  $\delta$  = an average depth of a layer of condensed steam disposed adjacent to said inner surface in inches.. It would have been obvious to one of ordinary skill in the art at the time the invention was made to is maximized, is minimized, and said number of turbulence bars being determined by the equation:  $N = \text{int} \{ 2n R_i / [4x(R_i \delta)^{1/2} + W] \}$  in which:  $N$  = said number of turbulence bars in said dryer shell;  $\text{int}$  = an integer number of a value in { } brackets;  $n=3.1415$ ;  $R_i$  = said inside radius of said inner surface of said dryer shell in inches;  $\delta$  = an average depth of said layer in inches;  $W$  = a width of each of said turbulence bars in inches,  $N=3$ ,  $N=4$ ,  $N=5$ ,  $N=6$ ,  $N=7$ ,  $N=8$ ,  $N=9$ , quarter-resonant spacing, minimized while optimizing, said quarter-resonant spacing is determined by an equation:  $S=4x(R_i \delta)^{1/2}$  in which;  $S$  = said quarter-resonant spacing;  $n=3.1415$ ;  $R_i$  = said inside radius of said inner surface of said dryer shell in inches;  $\delta$  = an average depth of a layer of condensed steam disposed adjacent to said inner surface in inches. since it has been held that discovering an optimum value of a results effective variable involves only routine skill in the art.

Claims 1-13, 18-20, 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnscheidt (3217426). Barnscheidt discloses a rotatable dryer shell of cylindrical configuration, said dryer shell having an outer surface for drying the web; said dryer shell having

Art Unit: 3749

an inner surface which defines an enclosure, said inner surface having a radius  $R_i$  (fig. 1, col. 3, lines 5-10); said enclosure being connected to a source of pressurized steam such that in operation of the dryer, a transfer of thermal energy from the steam within said enclosure through said inner surface of said dryer shell to said outer surface of said dryer shell is achieved so that the web is dried (col. 1, lines 12-20, lines 30-33, ); a syphon disposed within said enclosure for controlling a layer of condensed steam accumulating adjacent to said inner surface of said dryer shell during operation of said apparatus (fig. 1); a number of turbulence bars disposed within said enclosure, each of said turbulence bars extending in a cross machine direction in contact with said inner surface, said bars being circumferentially spaced equidistantly around said inner surface of said dryer shell for generating turbulence within said layer so that uniformity of said transfer of thermal energy in said cross machine direction ... while said transfer of thermal energy through said dryer shell from said inner to said outer surface ... (col. 3, lines 72-75, col. 4, lines 1-5), a rotatable dryer shell of cylindrical configuration, said shell defining an outer and an inner surface (fig. 1); a number of dryer bars pressed outwardly against said inner surface, each of said bars extending in a cross machine direction along said inner surface; and each bar being spaced from an adjacent bar by a ... such that a rate of heat transfer through said dryer shell from said inner to said outer surface is... a temperature uniformity in said cross machine direction (fig. 1, col. 3, lines 72-75, col. 4, lines 1-5), a further number of hoop segments spaced circumferentially along said inner surface of said dryer shell for holding said turbulence bars in contact with said inner surface; said number of turbulence bars being a multiple of said further number of hoop segments (6, fig. 1), holding a number of bars axially against an inside surface of the dryer cylinder (8,9, fig. 3), said number

Art Unit: 3749

being within a range 3 to 9; and locating hoop segments within the dryer cylinder such that each segment is disposed in a generally circumferential position (fig. 3, fig. 1). Barnscheidt discloses applicant's invention substantially as claimed with the exception of is maximized, is minimized, and said number of turbulence bars being determined by the equation:  $N = \text{int} \{ 2n R_i / [4x (R_i f_i) I/2 + W] \}$  in which: N= said number of turbulence bars in said dryer shell; int= an integer number of a value in { } brackets;  $n=3.1415$ ;  $R_i$  = said inside radius of said inner surface of said dryer shell in inches;  $\delta$  = an average depth of said layer in inches; W= a width of each of said turbulence bars in inches, said number of turbulence bars is equal to N + 1, said number of turbulence bars is equal to N + 2, N=3, N=4, N=5, N=6, N=7, N=8, N=9, quarter-resonant spacing, minimized while optimizing, said quarter-resonant spacing is determined by an equation:  $S = 4x (R_i \delta)^{1/2}$  in which; S= said quarter-resonant spacing;  $r \approx 3.1415$ ;  $R_i$  = said inside radius of said inner surface of said dryer shell in inches;  $\delta$  = an average depth of a layer of condensed steam disposed adjacent to said inner surface in inches, the number of bars is 3, 4, 5, 7, 8, 9. It would have been obvious to one of ordinary skill in the art at the time the invention was made to is maximized, is minimized, and said number of turbulence bars being determined by the equation:  $N = \text{int} \{ 2n R_i / [4x (R_i f_i) I/2 + W] \}$  in which: N= said number of turbulence bars in said dryer shell; int= an integer number of a value in { } brackets;  $n=3.1415$ ;  $R_i$  = said inside radius of said inner surface of said dryer shell in inches;  $\delta$  = an average depth of said layer in inches; W= a width of each of said turbulence bars in inches, N=3, N=4, N=5, N=6, N=7, N=8, N=9, quarter-resonant spacing, minimized while optimizing, said quarter-resonant spacing is determined by an equation:  $S = 4x (R_i \delta)^{1/2}$  in which; S= said quarter-resonant spacing;  $r \approx 3.1415$ ;  $R_i$  = said inside radius of said inner surface of said dryer shell in inches;  $\delta$  = an



Art Unit: 3749

average depth of a layer of condensed steam disposed adjacent to said inner surface in inches. since it has been held that discovering an optimum value of a results effective variable involves only routine skill in the art.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barnscheidt et al (3217426) as applied to claim 12 above, and further in view of Wimmer (4,478,168).

Barnscheidt et al discloses a cross-section of each of said bars is within a range from 0.25 inches x 0.25 inches to 1.0 inches x 1.50 inches (col. 4, lines 29); each of said bars is metallic and of ... configuration (fig. 1); said apparatus including: at least one hoop for pressing each of said bars against said inner surface of said dryer shell (fig. 2); said at least one hoop including: at least one segment (fig. 2). Barnscheidt discloses applicant's invention substantially as claimed with the exception of hollow tubular. Wimmer teaches hollow tubular to reduce weight. It would have been obvious to one of ordinary skill in the art to modify Barnscheidt by including hollow tubular as taught by Wimmer for the purpose of reducing weight for ease of transportation.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barnscheidt et al (3217426) as applied to claim 12 above, and further in view of Ives (7028756). Barnscheidt et al discloses a cross-section of each of said bars is within a range from 0.25 inches x 0.25 inches to 1.0 inches x 1.50 inches (col. 4, lines 29); each of said bars is metallic and of ... configuration (fig. 1); said apparatus including: at least one hoop for pressing each of said bars against said inner surface of said dryer shell (fig. 2); said at least one hoop including: at least one segment (fig. 2). Barnscheidt discloses applicant's invention substantially as claimed with the exception of hollow tubular. Ives teaches hollow tubular to reduce weight. It would have been obvious to

Art Unit: 3749

one of ordinary skill in the art to modify Barnscheidt by including hollow tubular as taught by Wimmer for the purpose of reducing weight for ease of transportation.

***Allowable Subject Matter***

Claims 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B. Rinehart whose telephone number is 571-272-4881. The examiner can normally be reached on 7:20 -4:20.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Josiah Cocks can be reached on 571-272-4874. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/715,889

Page 10

Art Unit: 3749

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KENNETH RINEHART  
PRIMARY EXAMINER